DYSLIPIDEMIA

I. INTRODUCTION

Coronary heart disease (CHD) is the single leading cause of death of women in the United States. Dyslipidemia is a major risk factor for CHD in women. For women at increased risk, elevated low-density lipoprotein (LDL) cholesterol is considered to be the major cause of atherosclerosis and CHD. Research has conclusively demonstrated that lowering cholesterol, especially LDL cholesterol, reduces the risk for CHD.

The cholesterol level in blood plasma is determined partly by genetic make-up and partly by the fat and cholesterol content of the diet. Other factors such as obesity and physical inactivity all contribute to an elevation of cholesterol. Because LDL cholesterol is the primary atherogenic lipoprotein, LDL cholesterol levels are closely correlated with CHD risk over a broad range. A low high-density lipoprotein (HDL) cholesterol level (<40 mg/dL) is also a risk factor. In contrast, a high HDL cholesterol level (≥60 mg/dL) is considered to be protective against CHD. Elevated triglycerides also are associated with increased CHD risk.

Along with lipid testing, adults should also be evaluated for the presence of other CHD risk factors including hypertension, cigarette smoking, severe obesity, diabetes mellitus, sedentary lifestyle, and a history of CHD in the client or a family history of premature CHD (before the age of 55 in males and 65 in females).

Intervention is based on the client's cholesterol levels and CHD risk factors. Management of major risk factors for CHD, such as hypertension and hypercholesterolemia, starts with lifestyle changes that emphasize a healthier diet (high in fiber and low in saturated fat), weight control, smoking cessation, and increased physical activity. If the response is inadequate, drug therapy is required.

Estrogens are known to have a desirable effect on lipids by increasing HDL and decreasing LDL. Progestins tend to have the opposite effect. The adverse changes produced by progestins are related to the specific progestin and its dose. A prudent choice, if lipoproteins are a concern, would be to use a low dose of norethindrone or possibly a norgestimate-containing oral contraceptive.

II. CLIENT SELECTION/ EDUCATION/ MEDICAL SCREENING

A. Family planning clients with two or more CHD risk factors (Appendix A) or age 45 or older should be referred for serum cholesterol screening. This test can be performed any time of the day in the nonfasting state. A lipid profile specimen should be obtained in the fasting state.
   1. Positive predictors
      a. Female: Age more than 55 years
      b. Premature menopause
      c. Cigarette smoking
      d. Hypertension (blood pressure >140/90 mm Hg)
      e. Diabetes mellitus

f. High-density lipoprotein cholesterol less than 35 mg/dL
g. Family history of myocardial infarction or sudden death before age 50 years in a first-degree male relative, or age 60 years in a first-degree female relative

2. Negative risk factor (protective): High-density lipoprotein cholesterol of more than 60 mg/dL (also allows subtraction of one risk factor)
3. Modifiable changes to reduce coronary artery disease
   a. Lose weight if obese
   b. Discontinue cigarette smoking if present
   c. Control diabetes mellitus if present
   d. Initiate exercise program
   e. Control hypertension
   f. Follow a low-fat and high-fiber diet
   g. Moderate alcohol use (two or fewer drinks per day)

B. Appropriate clients should receive information regarding risk factors for CHD (Appendix A). These clients should also be counseled on the health benefits attained from instituting lifestyle changes such as quitting smoking, reducing obesity, and initiating an exercise program. Dietary interventions such as a diet high in fiber and low in saturated fat should also be encouraged.
C. Clients with no CHD risk factors should be advised that their normal serum cholesterol values (<200 mg/dL) should be periodically reevaluated. Every 5 years is a reasonable interval for this evaluation.
D. CHD risk classifications based on total cholesterol and triglyceride levels should be assessed:
   1. Health professional reference materials (ATP III At-A-Glance: Quick Desk Reference) outlines cholesterol management in a sequence of easy-to-follow steps based on total cholesterol and triglyceride levels. This document can be accessed via the National Heart, Lung and Blood Institutes website at http://www.nhlbi.nih.gov/guidelines/cholesterol/atglance.pdf.
   2. A risk assessment tool for estimating 10-year risk of developing CHD (myocardial infarction and coronary death) can be found at the National Heart, Lung and Blood Institutes National Cholesterol Education Program website at http://hp2010.nhlbihin.net/atpiii/calculator?usertype=prof.

III. MANAGEMENT

Dyslipidemia should be managed by the client's primary care provider. Caution should be used when starting clients with hyperlipidemia on combined hormonal contraceptives.

A. Management of clients on combined estrogen/progestin contraceptives:
   1. Current low-dose combination hormonal contraceptives have minimal effects on the lipoprotein profile in normotensive, nonsmoking healthy women.
   2. Recent changes in combined oral contraceptives have involved efforts to lower the progestins and to find new formulations capable of producing a more favorable lipoprotein pattern. The latest generation of "new progestin" pills that promote a positive lipid pattern include Ortho-Cyclen®, Ortho Tri-Cyclen®, and Ortho Tri-Cyclen® Lo.

3. Women of any age who have dyslipidemia that puts them as high risk for CVD (defined as low-density lipoprotein cholesterol >160 mg/dl, high-density lipoprotein cholesterol <40 mg/dl or triglycerides >200 mg/dl) and other risk factors for CVD, or women with nephropathy or retinopathy are at increased risk of adverse CV events should use a progestin only contraceptive or a non-hormonal contraceptive.
4. Women over the age of 35 who are starting or continuing combined estrogen/progestin contraceptives should be tested for serum cholesterol. If the initial level is in the normal range, follow-up testing and assessment of risk should be done at least every 5 years.
5. Women with a known borderline serum cholesterol (200-239 mg/dL) should be referred for a fasting lipoprotein analysis and receive dietary education and advice on exercise. These clients should have annual cholesterol determinations with follow-up fasting lipoprotein analyses, if still elevated. However, if two or more CHD risk factors are present in these clients, they should be referred to a private provider of their choice for medical management. These clients may not be good candidates for certain hormonal contraceptives. Physician consultation is advised.
6. Women with a known serum cholesterol level of ≥240 mg/dL should be set up for a fasting lipoprotein analysis and be referred to a private provider of their choice for medical management and advice while continuing their current contraceptive.

B. Clients using depot medroxyprogesterone acetate DMPA injections: HDL cholesterol levels fall significantly in women using depot medroxyprogesterone acetate (Depo-Provera®) injections (USMEC Category 2).
C. Clients using intrauterine contraception: Although theoretical concerns exist about the effect of the LNG IUD (Mirena®) on lipids (USMEC Category 2), it is not contraindicated. There are no contraindications for Cu IUD (ParaGard®) for women with hyperlipidemia (USMEC Category 1).

IV. FOLLOW UP

A. Provide referrals as indicated
B. Clients with marked elevated cholesterol levels or hyperlipidemia must be under the care of a private provider familiar with the medical management and treatment modalities available.

REFERENCES

Centers for Disease Control and Prevention. U.S. Medical Eligibility Criteria for Contraceptive Use, 2016. MMWR / July 29, 2016 / Vol. 65 / No. 3

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